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طب عام ج/الكوفة

SECTION 16 Infectious Diseases QEUSTIONS

KHALID ALAARJI

1. A 16-month-old infant present with high fever, cough, coryza, and conjunctivitis; after 3 days a macular rash begins on the head and spreads over most of the body. On examination; cervical lymphadenopathy, splenomegaly, and temperature 40°C. CBC reveals WBC count 3000/mm^3
The severity of this illness is **MOST** likely related to the extent of

A. rash
B. fever
C. cough
D. leukopenia
E. splenomegaly

2. In acute measles, the World Health Organization recommends routine administration for 2 days of

A. zinc
B. folic acid
C. vitamin A
D. vitamin C
E. vitamin D

3. The **MOST** common complication of measles infection is

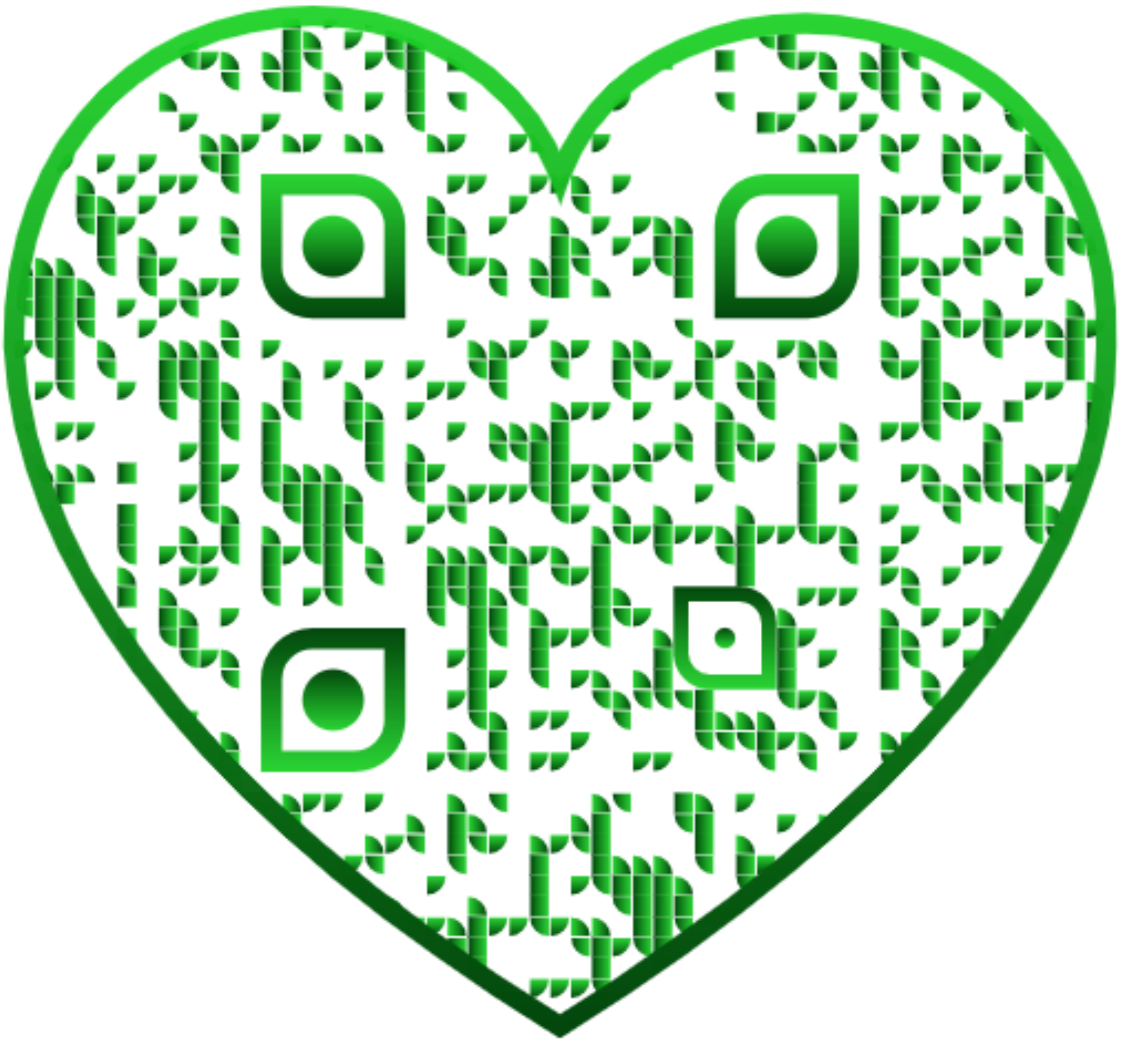
A. otitis media
B. myocarditis
C. encephalomyelitis
D. interstitial pneumonia
E. subacute sclerosing panencephalitis

Measles lead to 2nd infection

4. What is the **MOST** common site of skeletal tuberculosis?

A. spine
B. femur
C. hip joint
D. humerus
E. knee joint

back pain لذلك يجي
Due to back abscess by tb



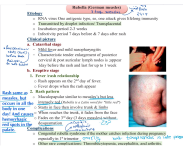
5. Ali's mother worried about her 23-month-old baby who has chronic renal failure, his sister developed measles 2 days ago.
Of the following, the **MOST** appropriate action is

A. isolation
B. reassurance
C. measles vaccine within 72 hr
D. immunoglobulin within 12 days
E. serologic test for IgM antibodies

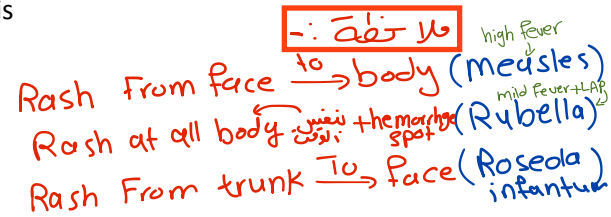
b. For contacts

- Exposed contacts with high risk of complications
  - This groups include infants < 1 year of age, and immunocompromised hosts
  - Intramuscular immune serum globulin can prevent measles if given within 6 days of exposure
  - Live vaccination is given 3 months later
- Exposed contacts without high risk of complications: can be given live measles vaccine within 72 hours of the exposure better than the immunoglobulin

6. A 3-year-old child present with anorexia, malaise, low-grade fever, and maculopapular rash begins on the face and spreads to the body for 3 days. On examination there is retroauricular and posterior occipital lymphadenopathy. CBC show WBC, 4500/mm^3 and platelate count, 110000/mm^3.
Of the following, the **MOST** likely diagnosis is



A. rubella
B. roseola
C. measles
D. scarlet fever
E. Kawasaki disease

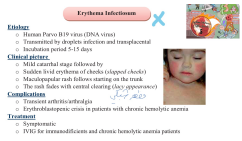

high fever
Rash From face to body (measles)
Rash at all body (Rubella)
mild fever+LAP
Rash From trunk To face (Roseola infantum)

7. Hind's mother brought her 2-year-old daughter to you in the primary health center, Hind's aunt developed rubella 2 weeks ago and they visited her yesterday. Hind's mother worried about herself and her daughter.
Of the following, the **BEST** advice to Hind's mother is

A. isolation
B. reassurance
C. rubella vaccine within 72 hr
D. immunoglobulin within 4 days
E. serologic test for IgM antibodies

8. A 9-month-old infant have remittent fever for the last 4 days with nasal congestion and mild cough, today he developed maculopapular rash after subsidence of the fever.
Of the following, the **MOST** likely diagnosis is

A. rubella
B. roseola
C. measles
D. scarlet fever
E. Kawasaki disease


Erythema Infectiosum
Etiology
Human Parvo B19 virus (DNA virus)
Transmitted by droplets infection and transplacental
Incubation period 5-15 days
Clinical picture
Mild catarrhal stage followed by
Sudden livid erythema of cheeks (slapped cheeks)
Maculopuppular rash follows starting on the trunk
The rash fades with central clearing (lacy appearance)
Complications
Transient arthritis/arthralgia
Erythroblastopenic crisis in patients with chronic hemolytic anemia
Treatment
Symptomatic
IVIG for immunodificients and chronic hemolytic anemia patients

9. A 6-year-old child present with low grade fever, pharyngitis and mild conjunctivitis. After about one week he developed facial rash with circumoral pallor followed by a pruritic reticulated rash over the body that waxes and wanes (recur with exercise and bathing).

central clearance

بدون هالجمله التشخيص حصبه

Of the following, the **MOST** likely cause is

A. adenovirus
B. measles virus
C. parvovirus B19
D. Epstein-Barr virus
E. herpesvirus type 6

Erythema infectiosum (fifth disease) is caused by the human parvovirus B19, a single-stranded DNA virus producing a benign viral exanthem in healthy children.

10. The treatment of latent tuberculosis is

A. observation
B. isoniazid only
C. rifampicin only
D. rifampicin and isoniazid
E. rifampicin, isoniazid, and pyrazinamide

In adult 2 drugs

Neurological complication of:-
Measles
- Aspetic Meningitis
- Transverse Myelitis
- Viral encephalitis
- SSPE

Varicella } cerebellums
Ataxia
tremor
nystagmus

11. A 6-year-old boy present with fever, malaise, anorexia, and rash which appear as small red papules and vesicles on an erythematous base; which ulcerate and crusted mainly on the trunk, head, and face.

Of the following, the **LEAST** common neurologic complication of this disease is

A. tremor
B. nystagmus
C. encephalitis
D. cerebellar ataxia
E. optic neuritis

اذا بالسوال ذكر الrash احمر جداً وفي مناطق محدده مثلا trunk face فالجواب varicella

Neurologic complications of chickenpox (varicella) include postinfectious encephalitis, cerebellar ataxia, nystagmus, and tremor. Less common neurologic complications include Guillain-Barre syndrome, transverse myelitis, cranial nerve palsies, optic neuritis, and hypothalamic syndrome.

12. A 7-year-old child, a known case of chronic eczema, exposed to chickenpox 2 days ago.

Of the following, the **MOST** appropriate action is

A. observation for 2wk
B. VZIG administration
C. acyclovir administration
D. varicella vaccine administration
E. serologic test for IgM antibodies

b. Anti-VZV immune globulin
- Recommended for post exposure prophylaxis for:
  - Immunocompromised children
  - Pregnant women
  - Newborns
- Dose is 1 vial (125 units) for each 10-kg of body weight ,IM
- As soon as possible but within 96 hr after exposure.

c. Oral acyclovir: late in the incubation period may be protective (??)

اما اذا كان not immunocomprimized
vaccin → **Give during 3 days**

Then other dose 3 months Later ← Immunoglobulin within 6 days. ← not immunocompro

عكس الحصبة تماما

immuncomps. Lvaccins.

For contact exposure

13. In chickenpox, acyclovir is considered in all the following **EXCEPT**

A. chronic cutaneous disease

For Immunocomprimized

هذا الموضوع مهم جداً:
اذا تعرض أحد لعدوى الحصبه :
سليم ماعنده نقص مناعه : انظي
Immunoglobulin
خلال ٦ ايام من بعد التعرض وجرعه ثانيه بعد ٣ اشهر
immunocomprimized: vaccins خلال ٣ ايام

varicella =
Not immunocomprimized= vaccin خلال ٣ ايام
Immunocomprimized = immunoglobulin
#infection
edited 3:01 PM

B. chronic pulmonary disease
C. short course corticosteroids
D. long-term salicylate therapy
E. unvaccinated persons < 12 yr

14. In meningitis, the characteristic sign of increased intracranial pressure with brain herniation is
A. vomiting
B. headache
C. papilledema
D. bulging fontanelle
E. bradycardia with hypertension

15. A 5-year-old child (who had neurosurgical procedure before 1 month) presented with fever, headache, repeated vomiting, and nuchal rigidity; Kernig and Brudzinski are positive; cerebrospinal fluid findings are (leukocytes 550/µL with PMNs predominate), protein (120 mg/dL), and glucose (44 mg/dL); serum glucose (118 mg/dL).
Of the following, the **MOST** common organism that cause this condition is
A. Staphylococcus
B. Neisseria meningitidis
C. Haemophilus influenzae
D. Pseudomonas aeruginosa
E. Streptococcus pneumoniae

Staphylococcal meningitis occurs primarily after neurosurgery or penetrating head trauma.

Staph = surgery

16. Of the following, the **LEAST** common cause of neonatal bacterial meningitis is
A. Klebsiella
B. Enterobacter
C. Escherichia coli
D. Group B streptococcus
E. Listeria monocytogenes

Most common is gram negative

17. Dexamethasone used as adjunctive therapy in bacterial meningitis to diminish the incidence of hearing loss and neurologic deficits resulting from
A. Listeria monocytogenes
B. Haemophilus influenzae type b
C. Gram-negative bacilli
D. Neisseria meningitidis
E. Streptococcus pneumoniae

H. influenza = Hearing loss

18. A 9-year-old child presented with history of fall from a height, he developed otorrhea and basilar skull fracture; 2 wk later he developed fever, headache, repeated vomiting, and nuchal rigidity; cerebrospinal fluid findings are (leukocytes 1600/µL with PMNs predominate), protein (140 mg/dL), and glucose (39 mg/dL); serum glucose (109 mg/dL).
Of the following, the **MOST** common organism causing this condition is

A. Staphylococcus
B. Neisseria meningitidis
C. Haemophilus influenzae
D. Pseudomonas aeruginosa
E. Streptococcus pneumoniae

A CSF leak (fistula), resulting from congenital anomaly or following a basilar skull fracture, increases the risk of meningitis, especially that caused by S. pneumoniae.

19. A 4-year-old child presented with history of fever, headache, lethargy, abnormal behavior, and seizures; CSF examination reveal (leukocytes 350/µL with mononuclear cells predominate), protein (70 mg/dL), and glucose (69 mg/dL); serum glucose (98 mg/dL); brain imaging show temporal lobe abnormalities.
Of the following, the **MOST** likely cause of this condition is

A. Adenovirus
B. Enterovirus
C. Haemophilus influenzae
D. Epstein-Barr virus
E. Herpes simplex virus

temporal lobe focus on EEG or brain imaging is the characteristic feature of herpes simplex virus (HSV) infection.

20. Of the following, the **MOST** common cause of acute encephalitis is

A. Enterovirus
B. Adenovirus
C. Epstein-Barr virus
D. Herpes simplex virus
E. Human immunodeficiency virus

Enterovirus

21. All the following matching regarding prevention of encephalitis are true **EXCEPT**

A. enteroviral encephalitis -- no action
B. influenza encephalitis ----- influenza vaccination
C. rabies ---------- preexposure or postexposure vaccination
D. arboviral encephalitis ---------- avoid mosquito-borne exposures
E. HSV encephalitis in infant of mother with active genital lesion --- IV acyclovir

There are no specific preventive measures for HSV encephalitis except for cesarean section for mothers with active genital lesions

22. Of the following, the **MOST** common viral cause of common cold is

A. influenza

B. rhinoviruses
C. parainfluenza
D. coronaviruses
E. respiratory syncytial virus

23. Allergic rhinitis is characterized by all the following **EXCEPT**
A. nasal polyps
B. allergic shiners
C. absence of fever
D. transverse crease on the nasal bridge
E. swollen, erythematous nasal turbinates

24. Of the following, the **MOST** common bacterial cause of pharyngitis is
A. Francisella tularensis
B. group A streptococcus
C. group C streptococcus
D. Chlamydophila pneumoniae
E. Arcanobacterium haemolyticum

25. The incidence of streptococcal pharyngitis increased in
A. toddlers
B. preschool-age children
C. school-age children
D. late adolescence
E. adulthood

26. A 16-year-old adolescent presented with history of acute pharyngitis; followed by thrombosis of the internal jugular vein and septic pulmonary embolism. Throat culture reveals Fusobacterium necrophorum.
Of the following, the **MOST** likely diagnosis is
A. trench mouth
B. ludwig angina
C. vincent angina
D. vincent infection
E. Lemierre syndrome

27. In acute pharyngitis, antibiotic therapy should be started promptly in children with all the following **EXCEPT**
A. scarlet fever

B. past family history of rheumatic fever
C. positive rapid test for group A streptococcus
D. symptomatic pharyngitis whose sibling has documented streptococcal pharyngitis
E. symptomatic pharyngitis and living in an area experiencing an epidemic of acute rheumatic fever or poststreptococcal glomerulonephritis

28. Regarding paranasal sinuses, all the following are true **EXCEPT**
A. ethmoidal sinuses are pneumatized at birth
B. sphenoid sinuses are present by 5 years of age
C. frontal sinuses begin to develop at 7 years of age
D. maxillary sinuses are pneumatized at 2 years of age
E. frontal sinuses are not completely developed until adolescence

29. A 7-year-old child presented with persistent mucopurulent rhinorrhea, nasal stuffiness, headache and cough, mainly at night preceded by history flue like illness; on examination there are facial swelling and tenderness.
Of the following, the major predisposing factor for the development of this condition is
A. allergy
B. nasal polyps
C. cystic fibrosis
D. common cold
E. nasal foreign body

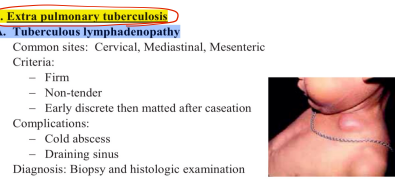
Common in sinusitis

30. The first-line therapy of sinusitis in children is
A. cefixime
B. levofloxacin
C. clindamycin
D. cefpodoxime
E. amoxicillin-clavulanate

31. In pulmonary tuberculosis, most infectious patients become noninfectious after starting effective treatment within
A. 2 weeks
B. 3 weeks
C. 4 weeks
D. 5 weeks
E. 6 weeks

32. The region of lymphadenopathy that's affected by tuberculosis and known as Ghon complex is

A. hilar primary (pulmonary)
B. axillary
C. cervical
D. supraclavicular
E. submandibular



33. A 16-month-old child presented with fever, poor feeding, and ear discomfort which interfere with normal sleep but you are an uncertain about the diagnosis of acute otitis media.
Of the following, the first-line therapy of this condition is

A. observation
B. cefdinir
C. amoxicillin
D. ceftriaxone
E. amoxicillin-clavulanate

34. A 7-year-old boy presented with earache and aural discharge mainly in left side, he recently was diving in swimming pool; on examination he is afebrile with tenderness on movement of the pinna.
Of the following, the **MOST** likely diagnosis is

A. otitis media
B. otitis externa
C. cholesteatoma
D. acute mastoiditis
E. otitis media with effusion

35. A 7-year-old boy presented with earache and aural discharge mainly in left side, he recently was diving in swimming pool; on examination he is afebrile with tenderness on movement of the pinna.
Of the following, the **MOST** likely cause of this condition is

A. Moraxella catarrhalis
B. group A streptococcus
C. Pseudomonas aeruginosa
D. Streptococcus pneumonia
E. nontypable Haemophilus influenzae

36. A 2-year-old child presented with recurrent attacks of stridor and harsh cough, sudden in onset mainly at night with no fever; most of the time the stridor relieved during the trip to hospital.
Of the following, the **MOST** likely diagnosis is

A. epiglottitis
B. vascular ring
C. spasmodic croup
D. subglottic stenosis
E. laryngotracheobronchitis

Differential diagnosis
- **Acute laryngitis**
  - Less severe croup (inspiratory stridor)
  - No respiratory distress
- **Spasmodic laryngitis**
  - Viral but may be allergy or psychogenic (afebrile illness)
  - Occurs at midnight
  - Less severe
  - Recurrence is common
- **Acute epiglottitis and acute tracheitis** : see later

37. The **MOST** common cause of laryngotracheobronchitis (croup) is

A. adenoviruese
B. parainfluenza viruses
C. group A streptococcus
D. respiratory syncytial virus
E. Haemophilus influenza type b

38. A 16-month-old child presented with history of a flu-like illness followed by harsh cough, hoarseness, inspiratory stridor, low-grade fever, and respiratory distress.
Of the following, the **MOST** characteristic radiographic finding is

A. thumb sign
B. steeple sign
C. hyperinflated lung
D. bilateral lung infiltrate
E. ground glass appearance

39. Treatment with erythromycin in the paroxysmal stage of pertussis

A. is of no benefit
B. lessen symptom severity
C. shorten the course of illness
D. decreases the potential for spread to others
E. eradicates nasopharyngeal carriage of organisms

40. A 3-year-old child presented with increased nasal secretions and low-grade fever for 1 week followed by paroxysmal coughing with post tussive emesis, the child was vaccinated with 1st 2 doses at one week and two month.
Of the following, the **MOST** helpful diagnostic test for this condition is

A. serologic tests

Pertussis

B. lymphocytosis
C. chest radiograph
D. polymerase chain reaction
E. direct fluorescent antibody staining

41. Regarding complications of pertussis, the **MOST** permanent disability is a result of

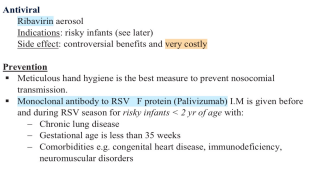
A. seizures
B. pneumonia
C. otitis media
D. malnutrition
E. encephalopathy

42. Of the following, the **LEAST** frequent cause of bronchiolitis is

A. coronaviruses
B. parainfluenza viruses
C. Mycoplasma pneumoniae
D. respiratory syncytial virus
E. human metapneumovirus

43. Monthly injections of palivizumab, a RSV-specific monoclonal antibody, initiated just before the onset of the RSV season confers some protection from severe RSV disease. Palivizumab is indicated for some infants under 2 years old with all the following **EXCEPT**

A. asthma
B. chronic lung disease
C. very low birth weight
D. hemodynamically significant cyanotic CHD
E. hemodynamically significant acyanotic CHD


Antiviral
Ribavirin aerosol
Indications: risky infants (see later)
Side effect: controversial benefits and very costly

Prevention
- Meticulous hand hygiene is the best measure to prevent nosocomial transmission.
- Monoclonal antibody to RSV F protein (Palivizumab) I.M is given before and during RSV season for *risky infants < 2 yr of age* with:
  - Chronic lung disease
  - Gestational age is less than 35 weeks
  - Comorbidities e.g. congenital heart disease, immunodeficiency, neuromuscular disorders

44. A 4-year-old child admitted to hospital with history of high fever, cough, and tachypnea; chest radiograph reveals lobar pneumonia treated with I.V. ceftriaxone with partial response; 7 days later, the fever recurs with toxicity, new chest radiograph reveals cavitary lesion with an air-fluid level.
Of the following, the **BEST** management is

A. to order CT scan
B. to add vancomycin
C. surgical interference
D. to add clindamycin

Lung abscess

E. to continue on the same antibiotic for 14 days

45. A 14-year-old adolescent boy presented with malaise, dry cough, and mild shortness of breath for 1 week. Frontal chest radiograph shows a diffuse pattern of increased interstitial markings, including Kerley lines.
Of the following, the **MOST** likely micro-organism causing this condition is

A. Chlamydia trachomatis
B. Ureaplasma urealyticum
C. Mycoplasma pneumoniae
D. Respiratory syncytial virus
E. Streptococcus pneumoniae

Atypical pneumonia describes patterns typically more diffuse or interstitial than lobar pneumonia. M. pneumonia and Chlamydophila pneumonia are principal causes.

typical → Lobar
Atypical → Diffuse

46. A 6-year-old child presented with high fever, cough, and chest pain. Frontal chest radiograph shows airspace consolidation, which obliterates the silhouette of the heart border on the left.
Of the following, the recommended treatment is

A. amoxicillin
B. ceftriaxone
C. clindamycin
D. vancomycin
E. azithromycin

47. The **MOST** common etiologic agent in a 4-year-old child with pneumonia is

A. influenza viruses
B. human metapneumovirus
C. Respiratory syncytial virus
D. Streptococcus pneumoniae
E. Haemophilus influenzae (type b)

48. A 6-year-old child with surgically repaired cyanotic CHD with prosthetic valve presented with sudden attack of unexplained fever, malaise, and weight loss; on examination there are palpable spleen, tachycardia, and a new heart murmur.
Of the following, the **MOST** likely etiologic pathogen of this condition is

A. Viridans streptococci
B. Staphylococcus aureus
C. Streptococcus pneumoniae
D. Gram-negative enteric bacilli
E. Hemolytic streptococci group A

Viridans streptococci are the principal causes of infective endocarditis in children with congenital heart diseases without previous surgery. Staphylococcus aureus and coagulase-negative staphylococci are important causes of endocarditis, especially following cardiac surgery and in the presence of prosthetic cardiac and endovascular materials.

Viridant = native valve
prosthetic valve = "Diseased valve" = S. aureus.

49. In high-risk patients, to prevent infective endocarditis, prophylactic antibiotics are required before and during all dental procedures and invasive procedures of the respiratory tract, infected skin, or muscle.
Of the following, the **MOST** appropriate antibiotic is

A. amoxicillin
B. ceftriaxone
C. cindamycin
D. azithromycin
E. benzathine penicillin

50. Modified Duke clinical criteria for diagnosis of infective endocarditis are two major criteria or one major and three minor criteria or five minor criteria.
Of the following, a major criteria is

A. Osler nodes
B. fever >38° C
C. Janeway lesions
D. new valvular regurgitation
E. predisposing heart condition

51. One of the mechanisms of infectious diarrhea is increasing cyclic adenosine monophosphate levels which mainly occurred by

A. Shigella
B. Rotavirus
C. Salmonella
D. Vibrio cholerae
E. Yersinia

52. A 9-month-old infant presented with low grade fever, repeated vomiting for 3 days followed by frequent loose bowel motions; the stool test was negative for blood and leukocytes, and there is no history to suggest contaminated food ingestion.
Of the following, the **MOST** likely etiological cause

A. rotavirus infection
B. traveler's diarrhea
C. lactose intolerance
D. Entameba histolytica
E. enteropathogenic E. Coli

يجي عنده التهاب بصدره قبل الاسهال
وامثر شي بالشتاء

53. All the following matching are true **EXCEPT**

A. Shigella dysenteriae ------ febrile seizures
B. Campylobacter jejuniis ----- traveler's diarrhea
C. Clostridium difficile ------ antibiotic-associated diarrhea
D. enterohemorrhagic (EHEC) ------ hemolytic uremic syndrome
E. enteropathogenic (EPEC) ------ epidemics of diarrhea in newborn nurseries

54. In gastroenteritis, a large inoculums is required to cause infection with

A. Shigella
B. Salmonella
C. E. coli O157:H7
D. Giardia lamblia
E. Entameba histolytica

55. A 3-year-old child presented with high fever, diarrhea, and seizure; stool examination is foul smelling and positive for mucus, blood, and leukocytes.
Of the following, the **MOST** likely diagnosis is

A. giardiasis
B. shigellosis
C. amebic dysentery
D. salmonella infection
E. Campylobacter infection

56. In the United States, the **MOST** common bacterial food-borne cause of diarrhea is

A. Shigella
B. Campylobacter
C. E. coli O157:H7
D. Listeria monocytogenes
E. nontyphoidal Salmonella

57. Colitis with minimal fecal leukocytes occur in infection with

A. Shigella
B. C. jejuni
C. Salmonella
D. E. histolytica
E. invasive E. coli

58. In patients with diarrhea, bacterial stool culture is recommended in all the following **EXCEPT**

A. fever
B. profuse diarrhea
C. traveler's diarrhea
D. pseudomembranous colitis → c. difficile
E. hemolytic uremic syndrome

59. Positive blood culture in bacterial enteritis is expected in

A. Shigella
B. Campylobacter jejuni
C. Yersina enterocolitica
D. Listeria monocytogenes
E. nontyphoidal Salmonella

Positive blood cultures are uncommon with bacterial enteritis except for S. typhi (typhoid fever), nontyphoidal Salmonella, and E. coli enteritis in very young infants.

60. Which of the following is a defective virus that occurs either as coinfection with HBV or superinfection in chronic HBsAg carriers?

A. hepatitis A virus
B. hepatitis B virus
C. hepatitis C virus
D. hepatitis D virus
E. hepatitis E virus

Hep. E is coinfection with Hep. A
Hep. D = = = Hep B

61. Regarding serological tests of hepatitis B virus (HBV) infection and it's significance, all the following matching are true **EXCEPT**

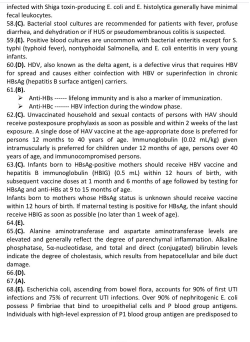
A. HBsAg ------ acute or chronic infection with HBV
B. Anti-HBs ----- HBV infection during the window phase
C. HBeAg ----- acute HBV
D. Anti-HBe ------ a low degree of infectivity during the carrier state
E. HBsAg and HBeAg in absence of anti-HBe ------ high risk of transmissibility

62. Ali's mother is worried about her 10-month-old infant who is exposed to his sister with hepatitis A viral infection.
Of the following, the **BEST** advice is to

A. reassure the mother
B. give HAV vaccine
C. give immunoglobulin
D. do liver function test
E. give both HAV vaccine and immunoglobulin

Hep A exposure → <12 y.o → vaccin
→ >12 y.o ~~196~~ → immunoglobulin

Unvaccinated household and sexual contacts of persons with HAV should receive postexposure prophylaxis as soon as possible and within 2 weeks of the last exposure. A single dose of HAV vaccine at the age-appropriate dose is preferred for persons 12 months to 40 years of age. Immunoglobulin (0.02 mL/kg) given intramuscularly is preferred for children under 12 months of age, persons over 40 years of age, and immunocompromised persons.


infected with Shiga toxin-producing E. coli and E. histolytica generally have minimal fecal leukocytes.
58.(C). Bacterial stool cultures are recommended for patients with fever, profuse diarrhea, and dehydration or if HUS or pseudomembranous colitis is suspected.
59.(D). Positive blood cultures are uncommon with bacterial enteritis except for S. typhi (typhoid fever), nontyphoidal Salmonella, and E. coli enteritis in very young infants.
60.(D). HDV, also known as the delta agent, is a defective virus that requires HBV for spread and causes either coinfection with HBV or superinfection in chronic HBsAg (hepatitis B surface antigen) carriers.
61.(B).
- Anti-HBs ------ lifelong immunity and is also a marker of immunization.
- Anti-HBc ------ HBV infection during the window phase.

62.(C). Unvaccinated household and sexual contacts of persons with HAV should receive postexposure prophylaxis as soon as possible and within 2 weeks of the last exposure. A single dose of HAV vaccine at the age-appropriate dose is preferred for persons 12 months to 40 years of age. Immunoglobulin (0.02 mL/kg) given intramuscularly is preferred for children under 12 months of age, persons over 40 years of age, and immunocompromised persons.
63.(C). Infants born to HBsAg-positive mothers should receive HBV vaccine and hepatitis B immunoglobulin (HBIG) (0.5 mL) within 12 hours of birth, with subsequent vaccine doses at 1 month and 6 months of age followed by testing for HBsAg and anti-HBs at 9 to 15 months of age.
Infants born to mothers whose HBsAg status is unknown should receive vaccine within 12 hours of birth. If maternal testing is positive for HBsAg, the infant should receive HBIG as soon as possible (no later than 1 week of age).
64.(E).
65.(C). Alanine aminotransferase and aspartate aminotransferase levels are elevated and generally reflect the degree of parenchymal inflammation. Alkaline phosphatase, 5e-nucleotidase, and total and direct (conjugated) bilirubin levels indicate the degree of cholestasis, which results from hepatocellular and bile duct damage.
66.(D).
67.(A).
68.(E). Escherichia coli, ascending from bowel flora, accounts for 90% of first UTI infections and 75% of recurrent UTI infections. Over 90% of nephritogenic E. coli possess P fimbriae that bind to uroepithelial cells and P blood group antigens. Individuals with high-level expression of P1 blood group antigen are predisposed to

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63. A newly delivered full term newborn to HBsAg-positive mothers, all the following are true regarding neonatal management **EXCEPT**

A. HBV vaccine within 12 hours of birth
B. hepatitis B immunoglobulin within 12 hours of birth
C. testing for HBsAg within 12 hours of birth
D. subsequent vaccine doses at 1 and 6 months of age
E. testing for anti-HBs at 9 to 15 months of age

64. The **MOST** prevalent hepatitis virus infection in HIV-infected persons is

A. hepatitis B virus
B. hepatitis C virus
C. hepatitis D virus
D. hepatitis E virus
E. hepatitis G virus

65. A good predictor for severe hepatocellular injury and progression to fulminant hepatic failure is

A. serum albumin
B. 5α-nucleotidase
C. prothrombin time
D. conjugated bilirubin
E. alanine and aspartate aminotransferase

66. In hepatitis A virus infection, the **MOST** common physical finding that is characteristic of the icteric phase in addition to jaundice is

A. lymphadenopathy
B. petechial rash
C. splenomegaly
D. tender hepatomegaly
E. abdominal distension

- Window phase
- icterus phase
- Recovery phase

67. The treatment of acute hepatitis is largely supportive and involves rest, hydration, and adequate nutrition.
All the following are indications for hospitalization **EXCEPT**

A. fever
B. dehydration
C. severe vomiting
D. prolonged prothrombin time
E. signs of hepatic encephalopathy

68. A 2-year-old girl presented with fever, urgency, dysuria, and abdominal pain. Of the following, the **MOST** common etiological pathogen is

A. Proteus
B. Klebsiella
C. Enterococcus
D. Pseudomonas
E. Escherichia coli

69. In general, 8% of girls and 2% of boys have a UTI by 11 years of age, but approximately 75% of infants with bacteriuria are male in age group of

A. < 3 months
B. 3 - 6 months
C. 6 - 9 months
D. 9 – 12 months
E. >1 year

Uti in healthy child are seen in girls

70. The classic signs of UTI such as urgency, dysuria, frequency, and abdominal or back pain begin in children at age of

A. 1 year
B. 2 years
C. 3 years
D. 4 years
E. 5 years

71. The diagnosis of UTI in infants requires the presence of both pyuria and single pathogenic organism of at least

A. 25,000 CFU/mL
B. 50,000 CFU/mL
C. 75,000 CFU/mL
D. 100,000 CFU/mL
E. 125,000 CFU/mL

But child + adult
> 100,000 CFU/ml

72. Urinalysis showing leukocyturia suggests urinary tract infection if there is

A. ≥1 white blood cells [WBCs]/mm^3
B. ≥ 5 white blood cells [WBCs]/mm^3
C. ≥10 white blood cells [WBCs]/mm^3
D. ≥15 white blood cells [WBCs]/mm^3
E. ≥20 white blood cells [WBCs]/mm^3

73. All the following can differentiate lower UTI from upper UTI **EXCEPT**

A. high ESR
B. high fever
C. leukocytosis
D. urine culture
E. costovertebral tenderness

micro organisms الكلچر يحدد
pyelonephritis or cystitis بس ميحدد

74. Renal scarring is a late effect of UTI, it's mostly identified by

A. KUB
B. DMSA scan → For acute pyelonephritis / Renal scarring
C. ultrasonography
D. voiding cystourethrogram
E. urinary dipstick test for leukocyte esterase

75. A 21-day-old infant presented with poor weight gain, decreased feeding, fever, and jaundice; urinalysis showing leukocyturia of 20 WBCs/mm^3; total bilirubin level, 13 mg/dl and direct bilirubin level, 4 mg/dl
Of the following, the **MOST** appropriate treatment is

A. oral cefixime
B. IV gentamicin
C. oral cephaloxine
D. oral amoxicillin plus clavulanic acid
E. oral trimethoprim sulfamethoxazole

Neonate + UTi = risk to bactremia
So treating with iv Antibiotics

76. A 2-year-old child presented with fever, irritability, and inability to walk; on examination there is erythema, swelling, warmth, and tenderness over the lower thigh; radiographs of the left knee showed focal destruction of the distal femoral metaphysis and periosteal reaction.
Of the following, the **MOST** common etiological pathogen of this condition is

A. anaerobes
B. Staphylococcus aureus
C. Group A streptococcus
D. Streptococcus pneumonia
E. Mycobacterium tuberculosis

77. Of the following, the **MOST** common etiological pathogen of osteomyelitis in children with sickle cell disease is

A. anaerobes
B. Salmonella

C. Pseudomonas aeruginosa
D. Streptococcus pneumonia
E. Haemophilus influenzae type b

78. The **MOSTLY** involved joint in suppurative arthritis is
A. hip
B. knee
C. ankle
D. elbow
E. shoulder

79. The hallmark of the radiological findings in chronic osteomyelitis is
A. sequestra
B. Brodie abscess
C. bone destruction
D. periosteal elevation
E. loss of the periosteal fat line

80. All the following matching regarding pathogens of osteomyelitis and their recommended treatment are true **EXCEPT**
A. Kingella kingae ------ oxacillin
B. Streptococcus pyogenes ------ penicillin G
C. Pseudomonas aeruginosa ------ ceftazidime
D. Streptococcus pneumonia ------ ceftriaxone
E. Methicillin-resistant staphylococcus aureus ----- cefazolin

- Methicillin-sensitive Staphylococcus aureus ----- nafcillin (or oxacillin) or cefazolin.
- Methicillin-resistant Staphylococcus aureus ----- clindamycin or vancomycin or Linezolid.

81. In osteomyelitis, which of the following joints when involved necessitate surgical drainage
A. hip
B. knee
C. ankle
D. elbow
E. shoulder

82. A 3-year-old child presented with limping, painful movement of lower limbs with both thighs held in external rotation and flexion; he had previous history of gastroenteritis.
Of the following, the **MOST** common causative pathogenic organism is
A. S. aureus

gastroenteritis → Then → Reactive arthritis
By :- Shigella
yersinia
C. jejuni
Salmonella
N. Meningitidis

B. N. gonorrhoeae
C. Group A streptococci
D. Shigella flexneri
E. Haemophilus influenzae type b

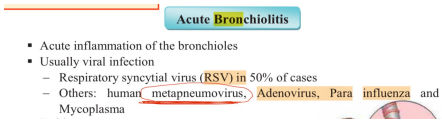
83. A 3-month-old infant presented with fever, irritability, and excessive crying especially during a diaper change; on examination, there is erythema, swelling, and tenderness over the left hip joint.
Of the following, the initial diagnostic procedure of choice for evaluation of this condition is

A. MRI
B. CT scan
C. ultrasound
D. radiograph
E. radionuclide scans

To identify joint effusion

84. Respiratory syncytial virus (RSV) is a primary cause of bronchiolitis, the second common cause is

A. rhinoviruses
B. adenoviruses
C. coronaviruses
D. parainfluenza viruses
E. human metapneumovirus


Acute Bronchiolitis
Acute inflammation of the bronchioles
Usually viral infection
Respiratory syncytial virus (RSV) in 50% of cases
Others: human metapneumovirus, Adenovirus, Para influenza and Mycoplasma

تم بحمده الله وتوفيقه

د. ايمان نبيل محمد
طب عام ج/ الكوفة

وتضيقُ دُنيانا فنحسَبُ أنّنا
سنموتُ يأساً أو نَموتُ نَحيبا
واذا بلُطفِ اللهِ يَهطُلُ فجأةً
يُربي منَ اليَبَسِ الفُتاتِ قلوبا.

SECTION 16 Infectious Diseases ANSWERS

KHALID ALAARJI

د. ايمان نبيل محمد

1.**(A).** In measles the rash fades in the same pattern, and illness severity is related to the extent of the rash. It may be petechial or hemorrhagic (black measles). As the rash fades, it undergoes brownish discoloration and desquamation.
2.**(C).** High-dose vitamin A supplementation has been shown to improve the outcome of infants with measles in developing countries.
3.**(A).** Otitis media is the most common complication of measles infection. Interstitial (measles) pneumonia can occur, or pneumonia may result from secondary bacterial infection with Streptococcus pneumoniae, Staphylococcus aureus,or group A streptococcus. Myocarditis and mesenteric lymphadenitis are infrequent complications. Encephalomyelitis occurs in 1 to 2 per 1000 cases and usually occurs 2 to 5 days after the onset of the rash. Subacute sclerosing panencephalitisis a late neurologic complication of slow measles infection that is characterized by progressive behavioral and intellectual deterioration and eventual death. It occurs in approximately 1 in every 1 million cases of measles, an average of 8 to 10 years after measles. There is no effective treatment.
4.**(A).** Tuberculosis of the spine, Pott's disease, is the most common skeletal site followed by the hip as well as fingers and toes (dactylitis).
5.**(C).** Susceptible household contacts with a chronic disease or who are immunocompromised should receive postexposure prophylaxis with measles vaccine within 72 hours of measles exposure or immunoglobulin within 6 days of exposure.
6.**(A).** Rubella, also known as German measles or 3-day measles, is caused by a single-stranded RNA virus with a glycolipid envelope and is a member of the togavirus family. Humans are the only natural host.
7.**(B).** Rubella virus is most contagious through direct or droplet contact with nasopharyngeal secretions from 2 days before until 5 to 7 days after rash onset, although virus may be present in nasopharyngeal secretions from 7 days before until 14 days after the rash.
8.**(B).** Roseola is characterized by high fever (often >40° C) with an abrupt onset that lasts 3 to 5 days. A maculopapular, rose-colored rash erupts coincidentally with defervescence, although it may be present earlier. The rash usually lasts 1 to 3 days but may fade rapidly and is not present in all infants with HHV-6 infection. Upper respiratory symptoms, nasal congestion, erythematous tympanic membranes, and cough may occur. Gastrointestinal symptoms are described

9.**(C).** Erythema infectiosum (fifth disease) is caused by the human parvovirus B19, a single-stranded DNA virus producing a benign viral exanthem in healthy children.
10.**(B).** Latent tuberculosis describes the asymptomatic stage of infection with M. tuberculosis. The tuberculin skin test (TST) is positive, but the chest radiograph is normal, and there are no signs or symptoms of illness. To prevent reactivation of these latent bacilli, therapy with a single agent (usually isoniazid for 9 months) is suggested.
11**.(E).** Neurologic complications of chickenpox (varicella) include postinfectious encephalitis, cerebellar ataxia, nystagmus, and tremor. Less common neurologic complications include Guillain-Barre syndrome, transverse myelitis, cranial nerve palsies, optic neuritis, and hypothalamic syndrome.
12**.(B).** Passive immunity can be provided by VZIG, which is indicated within 96 hours of exposure for susceptible individuals at increased risk for severe illness. Administration of VZIG does not eliminate the possibility of disease in recipients and prolongs the incubation period up to 28 days. Other indication of VZIG in a severe form of neonatal varicella may develop in newborns of mothers with varicella (but not shingles) occurring 5 days before to 2 days after delivery. The fetus is exposed to a large inoculum of virus but is born before the maternal antibody response develops and can cross the placenta. These infants should be treated as soon as possible with varicellazoster immunoglobulin (VZIG) or intravenous immunoglobulin if VZIG is unavailable, to attempt to prevent or ameliorate the infection.
13**.(E).** Routine oral administration of acyclovir is not recommended in otherwise healthy children with varicella. The decision to use antiviral medications, the route, and duration of treatment depend on host factors and the risk for severe infection or complications. Early therapy with antivirals (especially within 24 hours of rash onset) in immunocompromised persons is effective in preventing severe complications, including pneumonia, encephalitis, and death from varicella. Acyclovir or valacyclovir may be considered in those at risk of severe varicella, such as unvaccinated persons older than 12 years; those with chronic cutaneous or pulmonary disease; receiving short course, intermittent, or aerosolized corticosteroids; or receiving long-term salicylate therapy. The dose of acyclovir used for VZV infections is much higher than that for HSV.
14.**(E).** Symptoms of increased intracranial pressure include headache, diplopia, and vomiting; a bulging fontanelle may be present in infants. Ptosis, sixth nerve palsy, anisocoria, bradycardia with hypertension, and apnea are signs of increased intracranial pressure with brain herniation. Papilledema is uncommon, unless there is occlusion of the venous sinuses, subdural empyema, or brain abscess.

15.**(A).** Staphylococcal meningitis occurs primarily after neurosurgery or penetrating head trauma.
16.**(E).** Most common; Group B streptococcus, Escherichia coli, Klebsiella, and Enterobacter
Less common; Listeria monocytogenes, Coagulase-negative staphylococci, Enterococcus faecalis, Citrobacter diversus, Salmonella, Pseudomonas aeruginosa, and Haemophilus influenzae types a, b, c, d, e, f, and nontypable.
17.**(B).** Dexamethasone (0.6 to 0.8 mg/kg daily in two to three divided doses for 2 days), as adjunctive therapy initiated just before or concurrently with the first dose of antibiotics, significantly diminishes the incidence of hearing loss and neurologic deficits resulting from H. influenzae meningitis. Adjuvant steroids do not appear to decrease mortality or hospital stay in studies in the developed world.
18.**(E).** A CSF leak (fistula), resulting from congenital anomaly or following a basilar skull fracture, increases the risk of meningitis, especially that caused by S. pneumoniae.
19**.(E).** A temporal lobe focus on EEG or brain imaging is the characteristic feature of herpes simplex virus (HSV) infection.
20.**(A).**
21.**(E).** There are no specific preventive measures for HSV encephalitis except for cesarean section for mothers with active genital lesions
22.**(B).** The viruses primarily associated with colds are rhinoviruses and, less commonly, coronaviruses. Other viruses that cause common cold symptoms include respiratory syncytial virus and, less commonly, influenza, parainfluenza, and adenoviruses.
23.**(E).** Pale, edematous, nasal turbinate mucosa.
24.**(B).** Group A streptococci (Streptococcus pyogenes). Other bacterial organisms less often associated with pharyngitis include group C streptococcus, Arcanobacterium haemolyticum, and Francisella tularensis. Chlamydophila pneumoniae is associated with lower respiratory disease but also causes sore throat. Mycoplasma pneumonia is associated with atypical pneumonia and may cause mild pharyngitis without distinguishing clinical manifestations.
25.**(C).** Streptococcal pharyngitis is relatively uncommon before 2 to 3 years of age, but the incidence increases in young school-age children and then declines in late adolescence and adulthood.
26.**(E). Vincent infection or trench mouth** is a fulminant form of acute necrotizing ulcerative gingivitis with synergistic infection with certain spirochetal organisms, notably Treponema vincentii, with anaerobic Selenomonas and Fusobacterium. **Vincent angina** refers to a virulent form of anaerobic pharyngitis; gray pseudomembranes are found on the tonsils. **Ludwig angina** is a mixed anaerobic

bacterial cellulitis of the submandibular and sublingual regions. Although often applied to any infection of the sublingual or submandibular region, the term originally was reserved for a rapidly spreading bilateral cellulitis of the sublingual and submandibular spaces. It typically is due to spreading from a periapical abscess of the second or third mandibular molar. It also has been associated with tongue piercing. A propensity for rapid spread, glottic and lingual swelling, and consequent airway obstruction makes prompt intervention imperative

27.**(B).** Prompt treatment indicated if there is past personal history of rheumatic fever or a recent family history of rheumatic fever.

28.**(D).** The maxillary sinuses are present at birth and become pneumatized at 4 years of age.

29.**(D).** The common cold is the major predisposing factor for developing sinusitis at all ages. Other risk factors include allergy, cystic fibrosis, immunodeficiency, human immunodeficiency virus (HIV) infection, nasogastric or nasotracheal intubation, immotile cilia syndrome, nasal polyps, and nasal foreign body.

30.**(E).** Amoxicillin-clavulanate for 10 to 14 days is recommended as first-line therapy of sinusitis in children. High-dose therapy is recommended for children at increased risk for resistant bacteria (antibiotic treatment in the preceding 1 to 3 months, day care attendance, age <2 years, high rates of antimicrobial resistance locally). Levofloxacin is recommended for children with type I hypersensitivity to penicillins. Clindamycin plus a third generation cephalosporin (cefixime, cefpodoxime) is recommended for children with non-type I hypersensitivity.

31.**(A).** In pulmonary tuberculosis, most infectious patients become noninfectious within 2 weeks of starting effective treatment, and many become noninfectious within several days.

32.**(A).** Primary pulmonary tuberculosis in older infants and children is usually an asymptomatic infection. Often the disease is manifested by a positive TST with minimal abnormalities on the chest radiograph, such as an infiltrate with hilar lymphadenopathy or Ghon complex. Lymphadenopathy is common in primary pulmonary disease. Hilar lymphadenopathy may compress the bronchi or trachea. The most common extrathoracic sites of lymphadenitis are the cervical, supraclavicular, and submandibular areas (scrofula).

33.**(C).** The recommended first-line therapy for most children with a certain diagnosis of acute OM or those with an uncertain diagnosis but who are younger than 2 years of age or have fever greater than 39° C or otalgia is amoxicillin (80 to 90 mg/kg/day in two divided doses). Children with an uncertain diagnosis who are older than 2 years of age may be observed if appropriate follow-up can be arranged.

Recommended next-step treatments include high-dose amoxicillin-clavulanate (amoxicillin 80 to 90 mg/kg/day), cefuroxime axetil, cefdinir, or ceftriaxone (50 mg/kg intramuscularly in daily doses for 1 to 3 days).

34.**(B).** Otitis externa, also known as swimmer's ear, is defined by inflammation and exudation in the external auditory canal in the absence of other disorders, such as otitis media or mastoiditis. The most common bacterial pathogens are Pseudomonas aeruginosa, especially in association with swimming in pools or lakes, and Staphylococcus aureus.

35.**(C).** The most common bacterial pathogens are Pseudomonas aeruginosa, especially in association with swimming in pools or lakes, and Staphylococcus aureus.

36.**(C).** Spasmodic croup describes sudden onset of croup symptoms, usually at night, but without a significant upper respiratory tract prodrome. These episodes may be recurrent and severe but usually are of short duration. Spasmodic croup has a milder course than viral croup and responds to relatively simple therapies, such as exposure to cool or humidified air. The etiology is not well understood and may be allergic.

37.**(B).**

38.**(B).** In laryngotracheobronchitis (croup), the anteroposterior radiographs of the neck often show the diagnostic subglottic narrowing of croup known as the steeple sign (the tapered narrowing of the immediate subglottic airway).

39.**(D).** Treatment during the catarrhal phase eradicates nasopharyngeal carriage of organisms within 3 to 4 days and may lessen symptom severity. Treatment in the paroxysmal stage does not alter the course of illness but decreases the potential for spread to others.

40.**(D).** The diagnosis of pertussis depends on isolation of B. pertussis or detection of its nucleic acids. Culture on specialized media is usually accomplished during the early phases of illness on specimens from nasopharyngeal swabs or aspirates but can be difficult to accomplish given the organism's fastidious nature. Polymerase chain reaction, although potentially lacking sensitivity in previously immunized individuals, is likely as sensitive as culture and is available in many clinical laboratories.

41.**(E).** The most frequent complication is pneumonia caused by B. pertussis itself or resulting from secondary bacterial infection with Streptococcus pneumoniae, Haemophilus influenzae, and Staphylococcus aureus. Most children recover normal pulmonary function with complete healing of the respiratory epithelium. Most permanent disability is a result of encephalopathy.

42.**(C).** Respiratory syncytial virus (RSV) is a primary cause of bronchiolitis, followed in frequency by human metapneumovirus, parainfluenza viruses, influenza viruses,

adenoviruses, rhinoviruses, coronaviruses, and, infrequently, Mycoplasma pneumoniae.

43.**(A).**

44.**(D).** Lung abscess usually caused by certain virulent organisms (Anaerobic bacteria usually predominate, along with various streptococci, Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa, and Staphylococcus aureus). Diagnostic bronchoscopy may be indicated to exclude a foreign body and obtain microbiologic specimens. Lung abscesses usually respond to appropriate antimicrobial therapy with clindamycin, penicillin G, or ampicillin-sulbactam.

45.**(C).** Atypical pneumonia describes patterns typically more diffuse or interstitial than lobar pneumonia. M. pneumonia and Chlamydophila pneumonia are principal causes.

46.**(A).** The most likely pathogen causing lobar pneumonia is Streptococcus pneumoniae.

*Recommended treatment; Ampicillin or penicillin IV; amoxicillin PO.

*Alternative treatment; Ceftriaxone, cefotaxime, clindamycin or vancomycin IV; Cefuroxime, cefpodoxime, levofloxacin, or linezolid PO.

47.**(C).** In age group (3 months to 5 year); the common pathogens (in approximate order of frequency) are respiratory syncytial virus, other respiratory viruses (parainfluenza viruses, influenza viruses, human metapneumovirus adenoviruses), S. pneumoniae, H. influenzae (type b, nontypable).

48.**(B).** Viridans streptococci are the principal causes of infective endocarditis in children with congenital heart diseases without previous surgery. Staphylococcus aureus and coagulase-negative staphylococci are important causes of endocarditis, especially following cardiac surgery and in the presence of prosthetic cardiac and endovascular materials.

49.**(A).** In most cases, oral amoxicillin 50 mg/kg (maximum dose, 2 g) taken 30 to 60 minutes before the procedure is the recommended regimen. Clindamycin or azithromycin are alternative regimens indicated for most patients allergic to β-lactams. Prolonged or continuous antibiotic prophylaxis is not recommended.

50.**(D).**

Major Criteria

1- Positive blood cultures;

*Two or more separate cultures positive with typical organisms for infective endocarditis.

*Two or more positive cultures of blood drawn more than 12 hours apart or 4 positive blood cultures irrespective of timing of obtaining specimen.

*A positive blood culture for Coxiella burnetiior positive IgG titer >1:800.

2- Evidence of endocardial involvement.

3- Positive findings on echocardiogram (vegetation on valve or supporting structure, abscess, new valvular regurgitation).

Minor Criteria

1- Predisposition—predisposing heart condition or injection drug use.

2- Fever—temperature >38° C (>100.4° F).

3- Vascular phenomena (major arterial emboli, septic pulmonary infarcts, mycotic aneurysm, intracranial hemorrhage, conjunctival hemorrhages, Janeway lesions).

4- Immunologic phenomena (glomerulonephritis, Osler nodes, Roth spots, rheumatoid factor).

5- Microbiologic evidence (positive blood culture result, but not meeting major criteria, or serologic evidence of active infection with organism consistent with infective endocarditis).

51.**(D).**

*Secretory mechanism --- Cholera, toxigenic Escherichia coli (EPEC, ETEC); carcinoid, Clostridium difficile, and cryptosporidiosis (in AIDS)

*Mucosal invasion mechanism --- Celiac disease, Salmonella infection, shigellosis, amebiasis, yersiniosis, Campylobacter infection, and rotavirus enteritis

52.**(A).** Rotavirus is the most frequent cause of diarrhea during the winter months. Vomiting may last 3 to 4 days, and diarrhea may last 7 to 10 days. Dehydration is common in younger children. Primary infection with rotavirus may cause moderate to severe disease in infancy but is less severe later in life. This illness is much less common in areas where infants receive the rotavirus vaccine.

53.**(B).** Enterotoxigenic (ETEC) causes 40% to 60% of cases of traveler's diarrhea.

54.**(B).** A large inoculum, of 1000 to 10 billion organisms, is required because Salmonella is killed by gastric acidity.

55.**(B).** Dysentery is enteritis involving the colon and rectum, with blood and mucus, possibly foul smelling stools, and fever. Shigella is the prototype cause of dysentery, which must be differentiated from infection with EIEC, EHEC, E. histolytica (amebic dysentery), C. jejuni, Y. enterocolitica, and nontyphoidal Salmonella.

56.**(E).** In the United States, the **MOST** common bacterial food-borne causes (in order of frequency) are nontyphoidal Salmonella, Campylobacter, Shigella, E. coli O157:H7, Yersinia, Listeria monocytogenes, and V. cholerae. The most common parasitic food-borne causes are Cryptosporidium parvum and Cyclospora cayetanensis

57.**(D).** Stool specimens should be examined for mucus, blood, and leukocytes, which indicate colitis in response to bacteria that diffusely invade the colonic mucosa, such as Shigella, Salmonella, C. jejuni, and invasive E. coli. Patients

infected with Shiga toxin-producing E. coli and E. histolytica generally have minimal fecal leukocytes.

58.**(C).** Bacterial stool cultures are recommended for patients with fever, profuse diarrhea, and dehydration or if HUS or pseudomembranous colitis is suspected.

59.**(E).** Positive blood cultures are uncommon with bacterial enteritis except for S. typhi (typhoid fever), nontyphoidal Salmonella, and E. coli enteritis in very young infants.

60.**(D).** HDV, also known as the delta agent, is a defective virus that requires HBV for spread and causes either coinfection with HBV or superinfection in chronic HBsAg (hepatitis B surface antigen) carriers.

61.**(B).**

- Anti-HBs ------ lifelong immunity and is also a marker of immunization.
- Anti-HBc ------- HBV infection during the window phase.

62.**(C).** Unvaccinated household and sexual contacts of persons with HAV should receive postexposure prophylaxis as soon as possible and within 2 weeks of the last exposure. A single dose of HAV vaccine at the age-appropriate dose is preferred for persons 12 months to 40 years of age. Immunoglobulin (0.02 mL/kg) given intramuscularly is preferred for children under 12 months of age, persons over 40 years of age, and immunocompromised persons.

63.**(C).** Infants born to HBsAg-positive mothers should receive HBV vaccine and hepatitis B immunoglobulin (HBIG) (0.5 mL) within 12 hours of birth, with subsequent vaccine doses at 1 month and 6 months of age followed by testing for HBsAg and anti-HBs at 9 to 15 months of age.

Infants born to mothers whose HBsAg status is unknown should receive vaccine within 12 hours of birth. If maternal testing is positive for HBsAg, the infant should receive HBIG as soon as possible (no later than 1 week of age).

64.**(E).**

65.**(C).** Alanine aminotransferase and aspartate aminotransferase levels are elevated and generally reflect the degree of parenchymal inflammation. Alkaline phosphatase, 5α-nucleotidase, and total and direct (conjugated) bilirubin levels indicate the degree of cholestasis, which results from hepatocellular and bile duct damage.

66.**(D).**

67.**(A).**

68.**(E).** Escherichia coli, ascending from bowel flora, accounts for 90% of first UTI infections and 75% of recurrent UTI infections. Over 90% of nephritogenic E. coli possess P fimbriae that bind to uroepithelial cells and P blood group antigens. Individuals with high-level expression of P1 blood group antigen are predisposed to

pyelonephritis and bacteremia, as well as recurrent UTIs. Other bacteria commonly causing infection include Klebsiella, Proteus, Enterococcus, and Pseudomonas.

69.**(A).** Approximately 8% of girls and 2% of boys have a UTI by 11 years of age. The lifetime incidence of UTI in females is about 30% compared to only 1% in males. Approximately 75% of infants younger than 3 months of age with bacteriuria are male compared with only 10% between 3 and 8 months of age. After 12 months of age, UTI in healthy children usually is seen in girls.

70.**(B).**

71.**(B).** The diagnosis of UTI in infants and young children requires the presence of both pyuria and at least 50,000 CFU/mL of a single pathogenic organism. For older children and adolescents, >100,000 CFU/mL indicates infection.

72.**(C).** Urinalysis showing pyuria (leukocyturia of >10 white blood cells [WBCs]/mm^3) suggests infection, but also is consistent with urethritis, vaginitis, nephrolithiasis, glomerulonephritis, and interstitial nephritis.

73**.(D).** The diagnosis of a UTI is confirmed by a positive urine culture, but this does not distinguish between upper tract and lower tract infection. Fever and abdominal pain may occur with either lower or upper UTI, although high fever, costovertebral tenderness, high erythrocyte sedimentation rate, leukocytosis, and bacteremia each suggest upper tract involvement. DMSA scan is sensitive for detecting acute pyelonephritis but not commonly used.

74.**(B).** A technetium-99m DMSA scan can identify acute pyelonephritis and is most useful to define renal scarring as a late effect of UTI.

75.**(B).** Neonates with UTI are treated for 10 to 14 days with parenteral antibiotics because of the higher rate of bacteremia.

76.**(B).** Staphylococcus aureus is responsible for more than 80% of acute skeletal infections. Other common causes include Group A streptococcus and Streptococcus pneumoniae. Neisseria meningitidis, Mycobacterium tuberculosis, Bartonella henselae, Actinomyces spp., and anaerobes are less common causes.

77.**(B).** Sickle cell disease and other hemoglobinopathies predispose to osteomyelitis caused by Salmonella and S. aureus.

78.**(B).** The joints of the lower extremity are most often involved: the knees (40%), the hips (20%), and the ankles (14%). Small joints, such as those of the hand, usually are involved after penetrating trauma or closed fist injuries.

79.**(A).** Plain radiographs can demonstrate soft tissue swelling such as the loss of the periosteal fat line within the first 3 days of symptoms, but bony lesions such as periosteal elevation and bone destruction are absent until after 10 to 14 days of symptoms. Brodie abscess is a subacute intraosseous abscess that does not drain into the subperiosteal space and is classically located in the distal tibia. Sequestra, portions of avascular bone that have separated from adjacent bone, frequently are

covered with a thickened sheath, or involucrum, both of which are hallmarks of chronic osteomyelitis

80.**(E).**

- Methicillin-sensitive Staphylococcus aureus ----- nafcillin (or oxacillin) or cefazolin.
- Methicillin-resistant Staphylococcus aureus ----- clindamycin or vancomycin or Linezolid.

81.**(A).** Lack of improvement after 48 hours indicates that surgical drainage may be necessary or that an unusual pathogen may be present. Surgical drainage is indicated for extensive or severe disease, if the disease is chronic or atypical, the hip joint is involved, or sequestrum or spinal cord compression is present.

82.**(D).** Reactive arthritis is typically symmetric, polyarticular, and usually involves the large joints, especially the hips. Patients may have had a preceding episode of gastroenteritis or urethritis. Pathogenic organisms causing arthritis in children are Yersinia enterocolitica, Campylobacter jejuni, Shigella flexneri, Salmonella, Group A streptococci, Neisseria meningitidis, Coccidioides immitis, and Rubella virus.

83**.(C).** Ultrasound is especially useful for identifying joint effusions and is the initial diagnostic procedure of choice for evaluation of suppurative infections of the hip.

84**.(E).** Respiratory syncytial virus (RSV) is a primary cause of bronchiolitis, followed in frequency by human metapneumovirus, parainfluenza viruses, influenza viruses, adenoviruses, rhinoviruses, coronaviruses, and, infrequently, Mycoplasma pneumoniae.